

**REBUILD ATLANTA
ENERGY AUDITOR'S REPORT
ROSEL FANN RECREATION CENTER**

Prepared: April 21, 2004
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REPORT PREFACE

The information contained in this report consists of findings and recommendations conducted by the City of Atlanta's Energy Conservation Program through the Rebuild Atlanta initiative. The following information was gathered during a walk-through type audit designed to assess the general condition of the facility with an emphasis on discovering energy efficiency opportunities. All related observations and recommendations are based on the best available knowledge of the auditors and should not be considered conclusive, but rather an indication of building conditions. Any actions taken should be done so with the independent advice of experts. The Energy Conservation Program will be pleased to assist the Department of Parks, Recreation and Cultural Affairs in coordinating this technical assistance.

Building Summary



Rosel Fann Recreation Center (formerly Southeast)

**365 Cleveland Avenue
Atlanta, Georgia 30354**

Year Built:	1993
Building Size:	75,000 square feet (two stories)
Occupants:	5 FTE, variable occupancy
Operating Schedule:	9:30 a.m.- 10:30 p.m. with occasional special events
Electricity Cost (2003):	\$80,805
Electricity Usage (2003):	1,289,160 kWh
Cost Per Square Foot:	\$1.07/ft ²
Usage Per Square Foot:	17.18 kWh/ft ²
Natural Gas Cost (2002):	\$17,158
Natural Gas Usage (2002):	26,315 CCF
Cost Per Square Foot:	\$0.22/ft ²
Usage Per Square Foot:	0.35 CCF/ft ²

Recommendations

This section focuses on items that will be pursued by the Energy Conservation Program in cooperation with your department. Follow-up actions are outlined in more detail in Appendix A.

- Lighting
 - Retrofit all fixtures with T12 lamps and magnetic ballasts to T8 and electronic ballasts
 - Retrofit all incandescent downlamps with compact fluorescent lamps
 - Replace incandescent exit signs with LED/ENERGY STAR fixtures
 - Consider occupancy sensors for bathrooms, classrooms and other infrequently occupied areas
 - Consider high output fluorescent lighting in gymnasium/swimming pool areas
- Heating, Ventilation and Cooling
 - Analyze and review occupancy schedules and define operational needs
 - Tune-up (“retro-commission”) HVAC controls (repair/replace equipment) in order to return system to functioning status
 - Check for proper functioning of air handling units (AHU) inlet guide vanes, possibly replace with variable frequency drive
 - Wrap water heater(s) in insulating blanket(s)



Reported Items

This section contains items that were noted during the energy audits but do not fall under the scope of the Energy Conservation Program. Additional detail on these items is provided in Appendix B.

- HVAC
 - Insulation on refrigerant lines to condenser is corroded
 - Outdoor coils and air intakes need cleaning
 - Protective enclosure around exterior HVAC equipment is damaged
 - Verify operation of locker room and restroom exhaust fans, repair or replace as necessary
- Lighting
 - Consider replacing lighting fixtures in hallway with fixtures that are less costly to maintain
- Miscellaneous
 - Electrical room does not have a source of make-up air. A grill/louver can be installed on the door to supply make-up air.



Narrative

The City of Atlanta's Southeast Park Recreation Center is an approximately 95,000 square foot athletic and community building built circa 1992. The building is located at 365 Cleveland Drive, Atlanta, GA. The programmed space of the building includes an entrance area / lobby with adjoining day lit hallway with access to various classroom spaces on the east side and a large assembly area (community room) with kitchen on the west side. The entire south side of the building supports a competition swimming pool and a competition basketball court. Both swimming pool and basketball gym have bleachers. Behind the pool and gym areas, and below the entrance / lobby / classroom / assembly areas, are locker room and toilet facilities. Additionally, the gym / pool areas include a weight room, aerobics room, management offices and the swimming pool equipment room.

Heating, ventilation and air-conditioning (HVAC) to each the gym and pool is provided by packaged air-conditioning units with gas heat and, additionally, the pool area is conditioned by a unit specifically designed for pool areas and contains dehumidifying apparatus. The other zones (lobby, classrooms, community room) are conditioned by split system HVAC units (internal air handling unit and outdoor, pad mounted condensing unit) and are also supplied with gas heat. The areas are zoned by east wing, west wing, pool and gymnasium with each zone having a single HVAC unit and thermostat. The original design intent of the HVAC system (not including pool area) was a Variable Air Volume (VAV) system where individual spaces within a zone were under individual control via a VAV terminal unit (or "box") and airflow is controlled at the fan through the use of inlet guide vanes. However, the VAV control system has been disabled and the areas operate under a single thermostat regardless of space occupancy levels. The locker room and toilet areas have exhaust systems. The pool equipment room is also fitted with exhaust fans. The kitchen area contains typical equipment including exhaust hoods, dishwasher, ranges, ice makers, etc.

The domestic hot water systems, including the pool heaters, are fed by gas-fired units.

Exterior site lighting is provided by contract with Georgia Power. The building is fed with a 500 KVA transformer, which is a recent upgrade from a 300 KVA unit that did not have adequate capacity for the building load. Interior lighting systems are generally consistent with technologies at the time of construction and are predominately 4-tube, T12, magnetic ballast fluorescent fixtures. Pool lighting and gym lighting are typical metal halide type fixtures.

Building operation hours are generally from 9:30 am to 10:30 pm on weekdays and weekends. The large community room hosts several functions (wedding receptions, etc.), which can occur at various times. Since original construction, the program space has stayed essentially the same except for the addition of a 30+-unit computer room and an increased use of the community center.

Generally, the building is in good condition, and is operated and maintained well. However, the age of the building is such that upgrades (or tune-ups) to various degrees are in order. Newer technologies available today can dramatically reduces energy consumption (and thus utility bills), yet pose a traditional dilemma for operating bodies. Does an owner simply replace existing



equipment with equal replacements, or replace existing equipment with entirely new systems that represent advances in technology? Also, when use of a building changes, it becomes necessary to re-evaluate the lighting and HVAC systems to ensure that the changing needs of the building are met.

The lighting and lighting control system is outdated, and though operates, could produce significant savings with a retrofit. A review of operating procedures and occupancy schedules often produces significant savings by ensuring that all lighting that is not necessary is off. Additionally, the EXIT lights within the building are the now obsolete incandescent type.

It has been indicated that the swimming pool area dehumidifying equipment shall be replaced under separate contract. Therefore, this equipment is not highlighted in this report.

There has been some water seepage into the weight room and aerobics areas creating the potential for structural degradation and mold growth. It is understood that some measures have been taken to alleviate this problem and it is suggested that the areas in question be observed on a regular basis, especially following a rain event.

As is often the case in buildings, operating set points tend to be adjusted, changed, or disabled, and in time, the building is operating significantly outside of the original intent of the design. This is the case with the HVAC system that serves the lobby / classroom / assembly areas. The original design as installed was a variable air volume (VAV) system that allowed for individual control of each space and allowed for control of fan air volume. The VAV system, as installed, has been disabled and turned into, essentially, a constant volume system operated from a single thermostat for each unit. The method of controlling air volume was the use of inlet guide vanes located on the inlet of the fan. These devices restrict the opening size of the fan inlet and thus reduce airflow. Inlet guide vanes, however, have become obsolete due to the use of variable frequency drives. Therefore under the current control procedure, a single thermostat in a single room provides control of indoor temperature to multiple spaces. On the day of this survey, one classroom was occupied and the other classrooms were noticeably cold.

Goals

The goals for this building are focused on two areas, lighting and HVAC.

Due to the relatively simple nature and straightforward benefits of a lighting retrofit, this building is an excellent candidate for a lighting retrofit in accordance with the City of Atlanta Lighting Guidelines. Some lighting technologies installed will have greater life and will reduce maintenance resources required for upkeep. Parks design reports that this element has been included in the scope of work for an existing fit and finish renovation.

The second major goal for the facility is to establish effective and efficient control over the HVAC system. The existing system has been disabled due to malfunctions experienced early in the building's life. The scope of work to repair the building controls will also include all necessary repairs to the HVAC system itself to ensure properly operating climate control.



Conclusion

The Rosel Fann Recreation Center is in need of a “tune-up” typical of most buildings of this age and era. The swimming pool dehumidification system is scheduled for replacement under a separate contract. Parks Design and Technical Services have proven responsive to suggestions made during the audit and should be considered an excellent and motivated resource for future energy efficiency projects if given adequate resources.



Appendix A: Recommended Actions (Follow-up Actions Planned)

Lighting

Schedule lighting retrofit for all T12 fixtures and LED Exit Signs as recommended by the *City of Atlanta Lighting Retrofit Guidelines*.

HVAC

Issue RFP/Request for Bid: *Bureau of Recreation, Rosel Fann Recreation Center HVAC System Repair Services*, attached as separate document.

Consider replacing inlet guide vanes with a variable frequency drive to improve efficiency – see *Equipment Replacement Guidelines* for more information.



Appendix B: Reported Items (No Follow-up Action Planned)

HVAC

Replacing corroded insulation on outdoor refrigerant lines can be added to the annual HVAC contractor's scope of services.



Appendix C: Additional Resources

Lighting

Please see separate attachments, *City of Atlanta Lighting Retrofit Guidelines*, for information on how to conduct a building lighting upgrade.

HVAC

Please see the separate attachment, Request for Proposal/Bid, *Rosel Fann Recreation Center HVAC System Repair Services*, for information on how to restore HVAC system and controls to full operating order.

Operations & Maintenance

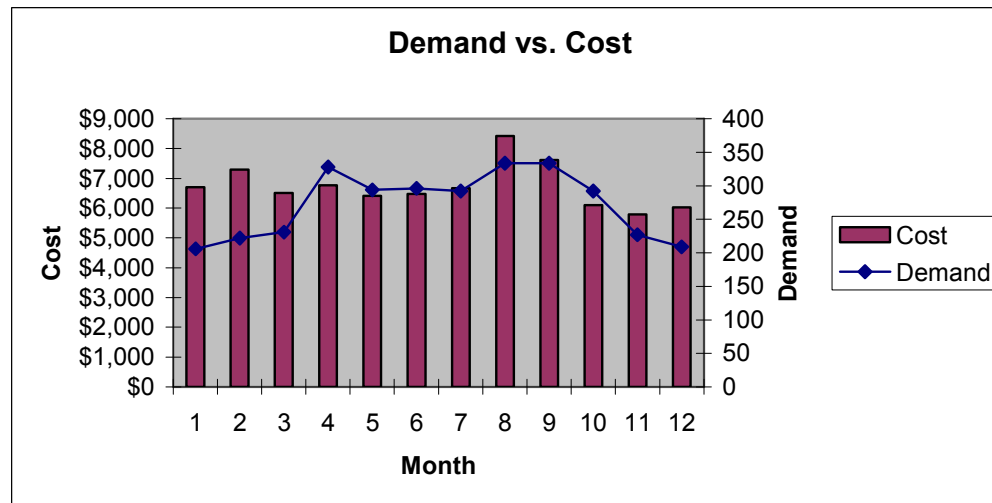
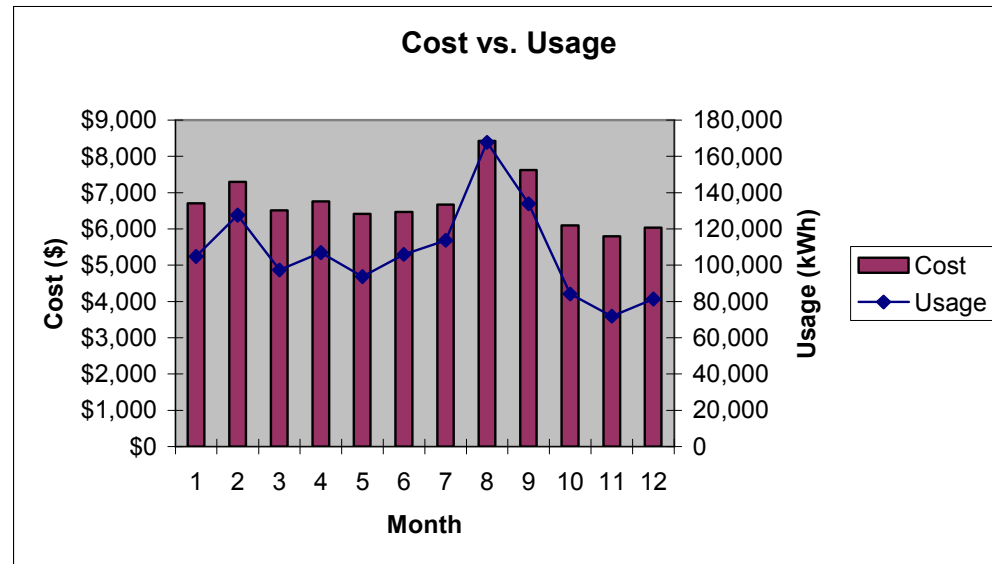
Please see the separate attachment, *Equipment Replacement Guidelines*, for equipment upgrades options when replacing equipment that has reached the end of its service life.



Appendix D: 12 Month Utility Data

The Table on the following page shows the electricity use, cost and peak demand for the year 2003. The top graph, labeled “Cost vs. Usage” shows the relationship between electricity consumption and cost for the year 2003. The bottom graph, labeled “Cost vs. Demand” shows the relationship between cost and peak demand for the year 2003

Jan-03	104,820	206	\$6,705
Feb-03	127,620	222	\$7,294
Mar-03	97,380	231	\$6,513
Apr-03	106,980	328	\$6,761
May-03	93,660	294	\$6,417
Jun-03	106,020	296	\$6,471
Jul-03	113,700	292	\$6,670
Aug-03	167,760	334	\$8,423
Sep-03	133,860	334	\$7,623
Oct-03	84,120	292	\$6,103
Nov-03	71,940	227	\$5,793
Dec-03	81,300	209	\$6,032



Natural Gas Data

Month	CCF	Cost
Jan-02	2,309	\$1,506
Feb-02	2,357	\$1,537
Mar-02	2,376	\$1,549
Apr-02	1,938	\$1,264
May-02	1,466	\$956
Jun-02	1,404	\$915
Jul-02	1,307	\$852
Aug-02	906	\$591
Sep-02	1,259	\$821
Oct-02	1,153	\$752
Nov-02	1,955	\$1,275
Dec-02	2,468	\$1,609
Total	20,898	\$13,627

